STATEMENT OF BASIS

ConocoPhillips Company
Billings Refinery
401 S 23rd Street
Billings, Montana 59101

Prepared by:

Montana Department of Environmental Quality
Permitting and Compliance Division
Waste and Underground Tank Management Bureau
Hazardous Waste Section
1520 E. 6th Ave.
Helena, Montana 59620

Public Comment Period:

December 19, 2005 through February 1, 2006

SEND WRITTEN COMMENTS TO:

Denise A. Kirkpatrick
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EXECUTIVE SUMMARY

The Montana Department of Environmental Quality (DEQ) has prepared this document, called a Statement of Basis, to explain a proposed remedy to address soil contamination at the ConocoPhillips Company's refinery in Billings, Montana. The refinery began operating in 1949 and is still an operating refinery. The refinery is located at 401 South 23rd Street in Billings, Montana.

On October 14, 2005, ConocoPhillips requested a permit modification for removal of the asphalt cap on the closed surface impoundment to allow remediation of soils. The remediation activity is necessary to allow ConocoPhillips to use the space for a new refinery process unit.

The closed surface impoundment is known as the South Oily Sludge Pits (SOSP). The proposed remedy is a change to the approved closure of the SOSP. The proposed remedy is a presumptive remedy to remove all soil at the SOSP to a depth of approximately six feet below the existing grade. The impacted soil will be treated to regulatory and health based levels. The treated soil will be returned to the SOSP, re-used on-site, or sent off-site for disposal. To facilitate the remediation, a temporary staging pile for remediation waste will be necessary. The staging pile will be used to store soils that contain listed hazardous waste and non-hazardous waste.

A portion of the Area 4 Landfill will also be excavated for the new refinery process unit. The Area 4 Landfill was used for disposal of discarded valves, piping, broken concrete, and spent Fluidized Catalytic Cracker (FCC) Catalyst. No corrective action was required for this unit after it was investigated in the facility-wide corrective action process. The Area 4 Landfill was determined to not pose a risk.

Groundwater contamination at the refinery is currently being addressed under a separate approved remedy.

The DEQ is now soliciting public review and comment on the proposed remedy. The comment period extends from December 19, 2005 through February 1, 2006. All written comments must be received by the DEQ on or before February 1, 2006 for consideration.

All persons wishing to comment on the draft permit modification should submit comments in writing to:

Denise A. Kirkpatrick
Solid and Hazardous Waste Specialist
Waste and Underground Tank Management Bureau
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

A public hearing will be held on January 24, 2006 at 6:00 p.m. on the third floor of the Parmly Billings Library, 510 N. Broadway, Billings, Montana. Any persons may submit oral or written statements and data concerning the draft permit modification. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing maybe required.

Please contact Denise A. Kirkpatrick at (406) 444-3983 or at the address listed above for further information.

TABLE OF CONTEXT

1.0 INTRODUCTION

The purpose of this document called a Statement of Basis (SB) is to:

- Identify the proposed remedy and explain the rationale for its selection;
- Describe all remedies considered;
- Solicit public review and comment on all remedies; and
- Provide information on how the public can be involved in the remedy selection process.

In addition, this document includes the requirements for a fact sheet listed in 40 Code of Federal Regulations (CFR) 124.8.

For ease of reading, when federal regulations under Title 40 of the CFR have been incorporated by reference into the Administrative Rules of Montana (ARM), only the federal citation is used in this document. The Montana hazardous waste program administrative rules incorporate by reference 40 CFR 260 through 279 and 40 CFR 124.

The Montana Department of Environmental Quality (DEQ) received from ConocoPhillips Company (ConocoPhillips) a hazardous waste permit modification request dated October 14, 2005 for a their refinery in Billings, Montana. The request is for removal of the asphalt cap on the closed surface impoundment known as the South Oily Sludge Pits (SOSP) to allow remediation of soils. This is a change to the approved closure method of the SOSP. ConocoPhillips had determined that the SOSP and a portion of the Area 4 Landfill are the best overall location for a new refinery process unit. The existing remedy at the SOSP limits the space's use and presents geotechnical problems for construction. Therefore, ConocoPhillips proposed a new remedy to the DEQ.

In the proposed remedy, soil will be removed to a depth of approximately six feet below ground surface and treated to appropriate regulatory and heath based levels. To facilitate the SOSP's remediation, a temporary staging pile will be necessary. ConocoPhillips proposed the modification to allow use of the area for construction of a new process unit. A portion of the Area 4 Landfill will also be effected by the construction activities.

ConocoPhillips identified the modification as a Class 2 modification under 40 CFR 270.42 Appendix I E.5. and N.3. Because of the complex nature of the requested changes (40 CFR 270.42(b)(6)(i)(C)), the DEQ required in an October 21, 2005 letter that the procedures in 40 CFR 270.42(c) for a Class 3 modification be followed. A Class 3 modification allows additional public comment time.

The DEQ will approve, approve with changes, or deny the modification request after the public comment period has ended and the information submitted during the comment period has been reviewed and considered. The SB is part of the public participation requirements required under the Montana Hazardous Waste Act.

2.0 BACKGROUND

2.1 Location

The ConocoPhillips refinery is located at 401 South 23rd Street in Billings, Montana and covers approximately 200 acres on the southeastern side of Billings. The legal description of the refinery is Northwest ¼ of Section 2, Township 1 South, Range 26 East in Yellowstone County, Montana.

The refinery is located on an alluvial terrace deposit associated with the Yellowstone River. The refinery's eastern property boundary is about 1,000 feet west of the Yellowstone River. The natural groundwater flow direction is northeast towards the Yellowstone River.

The two units effected by the proposed remedy are the SOSP and a portion of the Area 4 Landfill. These units are located in the southern most 40 acres of the facility. Figure 1 identifies the location of these units and the proposed staging pile.

2.2 Industrial Activities

The ConocoPhillips Refinery began operations in 1949 and is an active petroleum refinery. The refinery currently converts crude oil, condensate, and field butane, by various processes, into liquid petroleum gases, gasolines, jet fuel, diesel oil, fuel oils, and petroleum coke.

2.3 SOSP Closure and Permitting History

The SOSP operated from about 1966 to 1982 as a temporary storage area for API Separator Sludge (a hazardous waste) and other refinery waste. The wastes were stored in unlined pits during the winter months. During the following spring and summer months, the waste was transported to ConocoPhillips' off-site land treatment unit. In 1982 when ConocoPhillips discontinued waste storage activities at the SOSP, the unit was closed as a landfill and all wastes were removed from the pits and transported off-site to ConocoPhillips' hazardous waste land treatment unit. The pits were then backfilled. Waste residues and the underlying/surrounding waste-impacted soils were left in place.

In 1990, ConocoPhillips placed an asphalt cap over the SOSP to minimize long-term migration of surface water through the SOSP. The DEQ approved the certification of closure in a letter to ConocoPhillips dated January 11, 1991.

The SOSP was closed under interim status requirements of 40 CFR 265. A post-closure permit was required because the SOSP was closed after January 26, 1983 with waste in place. The SOSP is the only regulated unit at the refinery. A regulated unit is a hazardous waste management unit that requires a permit. On May 12, 2002, a Montana Hazardous Waste Permit was issued to ConocoPhillips for post-closure care of the SOSP and facility-wide corrective action.

2.4. Facility-Wide Corrective Action History

Until the permit was issued, the corrective action process at the refinery was handled under a RCRA, Hazardous and Solid Waste Amendment (HSWA) 3008(h) Consent Order. ConocoPhillips entered into the Order with the Environmental Protection Agency (EPA) in October 11, 1990. The Consent Order required ConocoPhillips to perform facility-wide corrective action. Corrective action is a process for investigating releases of contamination to the environment and designing remedies to address releases. Both the SOSP and Area 4 Landfill were included in the Consent Order as areas that needed to be addressed.

In the Order, the SOSP and Area 4 Landfill were identified as Solid Waste Management Units (SWMUs). SWMU means any discernible unit at which solid waste has been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous wastes. Such units include any area where solid wastes have been routinely and systematically released. As noted above, the SOSP is also the only regulated unit at the refinery.

In 1993, a groundwater interceptor system (GWIS) was installed under interim measures to control the off-site migration of contaminated groundwater. The GWIS consisted of groundwater recovery wells

along the northern and eastern refinery boundaries that were installed to provide hydraulic capture of groundwater beneath the refinery. The system recovers groundwater and light non-aqueous phase liquid (LNAPL). Recovered groundwater is treated in the refinery's wastewater treatment system and discharged into the Yegen Drain.

ConocoPhillips conducted the RCRA facility investigation (RFI) on the groundwater, surface water, and soils between 1991 and 1996. The purpose of the RFI was to fully determine the nature, concentration, rate, and extent of migration of any release of hazardous waste or hazardous constituents at or from the refinery that might pose an unacceptable risk to human health or the environment.

The final risk assessment was submitted in July 1997. The objective of the risk assessment was to identify potential human health and ecological effects that would be associated with the site if no remedial actions were taken. The general assumptions used in the risk assessment included:

- The site was evaluated as an industrial site as its current and reasonably expected future use;
- The GWIS would operate continuously to actively control groundwater; and
- Institutional controls were in place to control exposure pathways for groundwater use on-site.

Site-related Constituents of Interest (COI) were evaluated in the risk assessment. The COI were determined based on a review of the analytical data collected during the RFI. The risk assessment addressed the potential health risk to on-site industrial and construction workers as well as off-site workers and residents, as appropriate.

In an October 13, 1997 letter, EPA approved the RFI Report and Risk Assessment and required ConocoPhillips to conduct a Corrective Measures Study (CMS). EPA required that the CMS address certain SWMUs and Areas of Contamination (AOCs). The CMS Work Plan was required to address soils leachable to groundwater, dissolved constituents in groundwater, poor integrity of waste management units, and concentrations exceeding residential risk-based concentrations of hazardous constituents in groundwater and soils.

The Area 4 Landfill was not required to be included in the CMS. The Area 4 Landfill was used for disposal of discarded valves, piping, broken concrete, and spent Fluidized Catalytic Cracker (FCC) Catalyst. COI releases to soil appeared to have occurred from wastes managed in this unit. The COIs consist of volatile organics, semi volatile organics, and metals. However, releases from soils to groundwater appeared to have not occurred based on down-gradient groundwater quality. In addition, leach test results were negative. The risk assessment concluded that there were no unacceptable risks at the site from this SWMU.

On August 31, 1999, ConocoPhillips submitted the draft CMS report. ConocoPhillips prioritized on a site-wide basis, relative to their source contribution, the SWMUs and AOCs at the refinery. ConocoPhillips proposed to evaluate corrective measures for the high and the moderate problems to keep the focus on the areas of the facility that represent the greatest potential risk and impact to human health and the environment. The contaminated groundwater was given a high site-wide priority since it is the largest source of COI in the refinery.

The DEQ and EPA prepared a Statement of Basis to propose a remedy based on the information presented in the RFI and CMS Reports. The proposed remedy was approved on May 12, 2002.

Montana Hazardous Waste Permit #MTHWP-02-01 incorporated the selected remedy and required implementation of the corrective measures. ConocoPhillips submitted a draft *Corrective Measures*

Implementation Work Plan dated August 28, 2002. The Department approved the CMI Work Plan in a letter dated March 9, 2005.

The SOSP was not included in the CMS Report or the CMI Work Plan. ConocoPhillips and EPA had agreed on June 16, 1998 that a work plan to evaluate the risk-based clean closure of the SOSP soils would be submitted after the post closure permit was issued. In 2002, ConocoPhillips conducted an investigation at the SOSP for a risk-based clean closure. The primary COI at the SOSP are volatiles, semi volatiles, and inorganics including benzene, toluene, ethyl benzene, benzo(a)anthracene, benzo(a)pyrene, chromium, and lead.

The DEQ and ConocoPhillips had agreed to use EPA Region IX's Soil Screening Levels (SSLs) as the initial risk-based soil screening values for the 2002 clean closure determination of vadose zone soils at the SOSP. The investigation results indicated that soil at the SOSP exceeded the SSLs. Clean closure without removing impacted soil was not possible. In addition, the DEQ informed ConocoPhillips in a January 13, 2004 letter that soil at the SOSP contains a listed hazardous waste and, if actively managed, would have to be managed as a hazardous waste. Clean closure or re-use of the SOSP site was not pursued again until the October 14, 2005 modification request.

3.0. PROPOSED REMEDY

In an October 14, 2005 permit modification request, ConocoPhillips proposed a remedy for the SOSP and a portion of the Area 4 Landfill. The proposed remedy is a presumptive remedy to remove all vadose-zone soil at the SOSP to a depth of approximately six feet below ground surface. The vadose zone, also called the unsaturated zone, is the portion of soil above the water table. The highest water table recorded from three wells near the SOSP is about 5.4 feet below ground surface. However, the average historical groundwater level from these three wells is approximately 7.0 feet below ground surface.

The impacted soil will be treated to regulatory and health based levels. The remedy is necessary to allow use of the SOSP location for a new refinery process unit. The main points of the proposed remedy are listed below:

- Removal of the asphalt cap at the SOSP;
- Excavation of remediation waste at the SOSP and Area 4 Landfill;
- Off-site disposal of solid waste from the Area 4 Landfill including debris and catalyst;
- Soil management including segregation, sizing, and loading;
- Stockpiling non-impacted soil at the refinery pending re-use;
- Stockpiling contaminated soil in a temporary staging pile prior to treatment;
- Treatment of impacted soil exceeding regulatory and/or health based levels. Treatment will likely consist of processing the impacted soil through a low-temperature thermal desorption unit. Treatment will occur within the temporary staging pile; and
- Reuse of soil meeting approved regulatory and health based levels. The soil will be used as backfill at the SOSP or elsewhere on the refinery.

4.0. EVALUATION OF THE PROPOSED REMEDY

The criteria for evaluating the proposed remedy are technical performance, environmental concerns, human health concerns, institutional feasibility, and cost. ConocoPhillips proposed only one remedy. Because the proposed remedy should remove all the waste and waste residues in the vadose zone soils, it is considered a presumptive remedy.

4.1 Technical Performance

Technical performance includes performance, reliability, implementability, safety, and technical impracticability.

- *Performance* is measured by the effectiveness of the corrective measures at performing their intended functions and maintaining the performance over extended periods of time.

  The proposed remedy should be highly effective because the contaminated soil at the SOSP will be removed and treated. Since the contaminated soil will be treated to meet health based standards prior to returning it to the SOSP or used elsewhere on-site, the long-term impacts from the contaminated soil should be mitigated.

- *Reliability* refers to corrective measures that do not require frequent or complex operational and maintenance activities. The measures should have proven effectiveness under anticipated site conditions.

  The excavation, storage, and treatment of the contaminated soil will be implemented over a two-year period. The proposed methods involving excavation and treatment are proven approaches. ConocoPhillips has collected information during past investigations that should be sufficient to ensure that site conditions are known. Long-term inspections or maintenance will not be required. Therefore, the DEQ anticipates the proposed remedy can be reliably implemented.

- *Implementability* is determined by the period of time a corrective measure can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards.

  The staging pile regulations limit its use to approximately two years. The soil returned to the SOSP excavation will meet regulatory and health based levels. Therefore, contaminated soil at the SOSP will be reduced or immobilized within a relatively short period of time.

- *Safety* is factored in by comparing the threat posed to the surrounding community and on-site workers during implementation of the corrective action.

  Excavation, handling, and treatment of the soils may expose on-site workers to contaminated soil. However, the impacts should be limited. ConocoPhillips must comply with Occupational Safety and Health Administration (OSHA) regulations including those for hazardous waste operations. Mitigation of exposure may include personal protective equipment, dust suppression, and air monitoring. ConocoPhillips will be required to comply with applicable air quality regulations that are protective of ambient air quality surrounding the refinery. Therefore, the proposed remedy should not negatively effect the surrounding community.

- *Technical Impracticability* addresses the limitations of remediation of contaminated media to attain desired cleanup standards.

The proposed remedy includes standard excavation, handling, and treatment methods. Since sufficient site data exist, the remedy should be implemented without difficulty.

4.2 Environmental Concerns

Environmental concerns include the short and long-term beneficial and adverse effects of a remedy. The remedy with the least adverse impacts or greatest improvements to the environment over the shortest period of time would be favored.

The current remedy at the SOSP is an asphalt cap over contaminated soil. The cap prevents soil exposure to surface water and minimizes mobilization of contaminates. The proposed remedy would require that the soil be excavated and stored prior to treatment. During implementation, the potential exists for soil to be exposed to precipitation with possible generations of contaminated water. This would be a short-term adverse effect of the proposed remedy. However, this effect would be mitigated by containing the impacted water by required run-on and run-off controls on the staging pile.

The long-term impacts should be a reduction in the toxicity, mobility, and volume of contaminated soil. No negative long-term impacts from the proposed remedy should result.

4.3 Human Health Concerns

Human health concerns include the short and long-term potential exposure from the remedy. The corrective measures that provide the minimum level of exposure to contaminants and the maximum reduction in exposure are preferred.

Short-term exposure during remedy implementation is possible for on-site workers. However, proper safety procedures should minimize exposure. The proposed remedy will result in a reduction in the long-term exposure potential because toxicity, mobility, and volume of contaminated soil will be reduced. Compared to the existing remedy where contamination has been left in place, the proposed remedy reduces long-term potential human exposure.

4.4 Institutional Feasibility

The legal enforceability under state and federal law of any proposed institutional control is evaluated under institutional feasibility. The proposed modification, the subsequent permit, and any work plans to implement the proposed remedy address the legal issues associated with the proposal. The DEQ does not anticipate any legal concerns with implementation of the proposed remedy.

4.5 Costs

ConocoPhillips has determined that the SOSP and a portion of the Area 4 Landfill are the best overall location for a new refinery process unit. The existing remedy at the SOSP limits the space's use and presents geotechnical problems for construction. Therefore, ConocoPhillips proposed a new remedy to the DEQ. ConocoPhillips has stated that cost of the proposed remedy is not a significant determinant for balancing removal versus containment options since the waste and impacted soil must be removed as part of the planned construction project. The cost of the proposed remedy is significantly less than excavation and off-site treatment and disposal.

In conclusion, the DEQ believes the proposed remedy adequately meets the evaluation criteria and should in the long-term benefit human health and the environment.

5.0 PERMIT CONDITIONS

All conditions of the draft permit are based on requirements in Title 17, Chapter 53 of ARM for the management of hazardous waste. ConocoPhillips must follow the permit conditions in order to be in compliance with Montana's hazardous waste laws and rules. Permit noncompliance could result in enforcement action or permit termination by the DEQ.

The permit is divided into six separate sections called modules.

- Module I – Standard Facility Conditions
- Module II – General Facility Standards
- Module III – Facility Wide Corrective Action
- Module IV – Regulated Unit, South Oily Sludge Pit
- Module V – Waste Minimization
- Module VI – Staging Pile

Modules I and II include: the areas of the facility the permit applies to; requirements for permit modifications, revocation and reissuance, and termination; record keeping requirements; sampling and analytical requirements; definitions of terms used in the permit; and financial assurance requirements. The proposed permit modification includes minor changes to these sections to reflect changing the approved post-closure plan.

Module III establishes requirements for each phase of facility-wide corrective action. The proposed permit incorporates the SOSP's selected remedy and requires implementation.

Modules IV includes the requirements specific to the SOSP. The proposed permit modification allows for changes to security, inspection, and post-closure care once the new remedy is implemented.

Module V includes requirements for certification pursuant to 40 CFR 264.73(b)(9). ConocoPhillips must certify that they have a program in place to reduce the volume and toxicity of hazardous waste to the degree determined to be economically practicable and that the proposed method of treatment, storage, or disposal is the most practicable method available that minimizes the present and future threat to human health and the environment. This Module is not effected by this permit modification

Module VI is a proposed new module added to the permit to include language for the staging pile. The staging pile was proposed to facilitate implementation of the SOSP's remedy. The Module includes permit conditions to comply with 40 CFR 264.554. Details regarding design, operation, and closure are required to be included in work plans.

6.0 PUBLIC PARTICIPATION

The public including interested citizens, DEQ, EPA, other governmental agencies, and the applicant are given forty-five (45) days to review and comment on the draft permit modification including the proposed remedy before a final decision is made by DEQ. **The comment period will extend from December 19, 2005 through February 1, 2006.**

A public hearing will be held on January 24, 2006 at 6:00 p.m. on the third floor of the Parmly Billings Library, 510 N. Broadway, Billings, Montana. Any persons may submit oral or written statements and data concerning the draft permit. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing may be required.

The Statement of Basis (SB), draft permit modification, and other associated documents will be available for review at the following locations:

Montana Department of Environmental Quality Permitting and Compliance Division Waste and Underground Tank Management Bureau 1520 E. 6th Ave. Helena, Montana 59620	Montana Department of Environmental Quality Airport Business Park, 1P-9 1371 Rimtop Drive Billings, Montana 59105

Only the changes proposed in the permit modification (changes involving the removal of the final cover at the SOSP, selection of a remedy for the SOSP, and the construction and operation of a staging pile to facilitate remediation activities) are open for public comment (40 CFR 124.5(c)(2)). All persons wishing to comment on the draft permit and/or the proposed remedy should submit comments in writing to:

Denise A. Kirkpatrick
Solid and Hazardous Waste Specialist
Waste and Underground Tank Management Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

All comments must be received by the DEQ on or before February 1, 2006 for consideration. Any supporting material that is submitted must be included in full and may not be referenced unless the material is a generally available reference material.

The DEQ will prepare a Response to Comments after reviewing all comments. The Response to Comments will: 1) explain any changes to the draft permit modification including the proposed remedy; and 2) describe and respond to all significant comments. The DEQ will then issue, issue with changes, or deny the modification request.

When DEQ makes a final decision on the draft permit modification, notice will be given to the applicant and each person who submitted written comments or requested a notice of the final decision. The final permit decision shall become effective thirty (30) days after the service of the notice of the decision unless a later date is specified. If no comments are received on the draft permit modification, the final permit decision shall become effective immediately upon issuance.

Please contact Denise Kirkpatrick at (406) 444-3983 or at the address listed above for more information.